

The University of Chicago

A COMPARATIVE STUDY OF
CERTAIN ASPECTS OF THE OLD AND
NEW PLANS AT THE UNIVERSITY
OF CHICAGO

A PART OF A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE
SOCIAL SCIENCES IN CANDIDACY FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF EDUCATION

1941

By

WIPPERT A. STUMPF

CHICAGO, ILLINOIS

1943

The University of Chicago

A COMPARATIVE STUDY OF
CERTAIN ASPECTS OF THE OLD AND
NEW PLANS AT THE UNIVERSITY
OF CHICAGO

A PART OF A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE
SOCIAL SCIENCES IN CANDIDACY FOR THE
DEGREE OF DOCTOR OF PHILOSOPHY

DEPARTMENT OF EDUCATION

1941

By
WIPPERT A. STUMPF

CHICAGO, ILLINOIS

1943



TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION	1
II. THE POPULATIONS.	4
III. COMPARISONS AT THE COLLEGE LEVEL	7
IV. COMPARISONS AT THE DIVISIONAL LEVEL.	26
V. CONCLUSIONS.	41

CHAPTER I

INTRODUCTION

Among the educational innovations of the past decade, probably none has attracted wider notice than the "New Plan" at the University of Chicago. The New Plan, which was adopted after a searching self-examination into the university's instructional policies and methods, is actually the assembling, adapting, and implementing of several tried devices of instruction and curriculum construction, accompanied by the discarding of some of the traditional procedures, the result being a plan whose basic philosophy differs markedly from that underlying the customary patterns.

Differences between the philosophies of the Old and the New Plans are centered in the provisions for general and specialized education, for individual differences, for objective measurement of student achievement, and for unity or articulation.

General education under the Old Plan was provided for in rather unintegrated fashion, based on certain "distributive" and "continuation" groups of courses which were intended to round out the general education begun by the student in the secondary school. The courses were more or less independent and discrete in character. Under the New Plan, general education is more exactly defined, and is provided through general introductory courses in four fields of knowledge--the Biological Sciences, the Physical Sciences, the Humanities, and the Social Sciences--each integrated as to content and method of instruction. The object of these courses is to deal with knowledge, understandings, and appreciations in a broad way, rather than to promote technical proficiency.

Specialization under both plans was and is centered primarily beyond the College level, but in the Old Plan possibilities of its presence during the first two years existed to a greater degree than was felt to be necessary or desirable. Some early specialization, however, was introduced into the work of the

College under the New Plan.

While individual differences were not neglected under the Old Plan, under the New Plan efforts have been increased toward making the curriculum more effective for each student in light of his needs and desires. The New Plan throws the responsibility and initiative for his education upon each student, and extends to him the advice of an expanded guidance and counseling service. A student is expected to advance much more nearly at his own rate than was common under the Old Plan. Devices by which this is accomplished include the abolition of accumulations of course credits in the College and largely so in the Upper Divisions as means of meeting the requirements, freedom from compulsory class attendance, fulfillment of the requirements of the College by means of comprehensive examinations which a student may take when he feels ready, the satisfaction of many of the major requirements of the Divisions through comprehensive examinations rather than through the accumulation of course credits, and improved articulation between and among the departments and divisions.

Testing technicians, with the aid of faculty members, create the comprehensive examinations used under the New Plan in the College. The teaching and scoring functions are separated at the College level. While instructors may help to score the examinations, they do not necessarily mark the tests of students in their own sections. Furthermore, the name of the student does not appear on his examination paper, the result being that scoring is de-personalized. In contrast, measurement under the Old Plan was almost entirely by means of examinations administered by the faculty members over their own quarter-courses.

Improvements in articulation grow out of some of the administrative differences between the two plans. The elimination of a duplication of high-school work, for example, was accomplished directly to some extent in both plans, but flexible arrangements for class attendance also brought it about indirectly under the New Plan. Further, at the College level under the New Plan the introductory general courses in the four broad fields are intended to break through departmental boundaries, in contrast to the departmental independence found under the Old Plan. The possibilities for inter-departmental co-operation within the Upper Divisions are also increased under the New Plan.

To implement the New Plan, an administrative reorganization

was effected in October, 1930, which provided for a "Lower Division" comprising the work of the first two years; and for the "Upper Divisions," which superseded the former Senior Colleges and two graduate schools. The Upper Divisions, termed "the Divisions," comprise the Division of the Biological Sciences, the Humanities, the Physical Sciences, and the Social Sciences. Each of the five Divisions has a faculty, a dean, a dean of students, and the responsibility for the senior-college and graduate instruction in its field. The faculty of the College Division is drawn in large part, if not entirely, from the four Upper Divisions. The University Senate in December, 1930, authorized the position of "Dean of Students and University Examiner," co-ordinate in rank with the Divisional Deans, and whose duty it is to co-ordinate all of the University's relations with students in Arts, Literature, and Science. A Board of Examinations was created in March, 1931, with policy-making and legislative functions.¹

The purpose of the present study is to compare some of the results of instruction found in the records of the students enrolled under the two plans. In the following sections the more important findings will be presented.

¹Chauncey S. Boucher, The Chicago College Plan, p. 10. Chicago: The University of Chicago Press, 1935.

CHAPTER II

THE POPULATIONS

Basic data for the various comparisons were obtained from 2,523 official student records held in the Registrar's files. The population group used was the residue after the records of all students with transfer credit and all others apparently not seeking degrees were eliminated. The totals for each year-group are shown in Table 1.

TABLE 1
POPULATIONS OF STUDENTS IN THE OLD PLAN
AND NEW PLAN GROUPS

Autumn of Entrance	Men		Women		Total
	Number	Percentage	Number	Percentage	
Old Plan Groups					
1921	396	59.10	274	40.90	670
1930	310	56.16	242	43.84	552
Total . .	706	57.77	516	42.23	1,222
New Plan Groups					
1931	389	58.32	278	41.68	667
1932	372	58.68	262	41.32	634
Total . .	761	58.49	540	41.51	1,301

As may be seen in Table 2, the mean age of the groups at the time of their matriculation in the University consistently fell. Data not presented here also show that the mean ages of the women were consistently, but fractionally, lower than those of the men.

Scholastic aptitude ratings, based on the scores made on the Psychological Examination of the American Council on Education, were available only for the groups entering in 1930, 1931, and 1932, and are shown in Table 3. On the basis of the medians

TABLE 2

	Mean Age at Matriculation	Standard Deviation
Entire 1921 group	18.83	2.02
Arts, Literature, and Science only.	18.72	1.88
1930 group.	18.36	1.95
1931 group.	18.25	1.99
1932 group.	18.17	1.67

TABLE 3

MEANS OF RAW SCORES MADE BY "NATIVE" FRESHMAN MEN
AND WOMEN ENTERING THE UNIVERSITY OF CHICAGO
IN THE AUTUMN QUARTERS OF 1930, 1931, 1932

Groups	Men		Women		Total		Differences between Means for Men, Women
	Mean	S.D.	Mean	S.D.	Mean	S.D.	
1930.	191	52	177	52	185	52	14
1931.	208	54	192	50	202	52	16
1932.	224	54	208	49	217	52	16

alone, it would seem that a substantially higher quality of student was being attracted to the University. National medians, however, showed a gain from 139 to 164. Nationally, a gain of 18 per cent in median score was made by the 1932 group over the 1930 group; for the Chicago groups, the gain during the same period was 19 per cent.

There seems to be little reason to assume that Freshmen, either at the University or nationally, rose in ability to the extent indicated by their rising scores, especially if the medians are studied prior to 1930 and after 1932. Various explanations for the higher medians have been given by the Thurstones,¹ authors of the tests, including the practice effect, the difficulty of the tests themselves, and a selective factor operating among the schools reporting. Considering the scores of 1931, only, Reitz compared the medians of eighty-five identical colleges reporting

¹L.L. Thurstone and Thelma G. Thurstone, "The 1932 Psychological Examination," The Educational Record, XIV (April, 1933), 194, 195.

in both 1930 and 1931, and concluded that there was no selection, hence no correction factor for 1931, and that "these national norms can be taken at their face value."¹ A fourth explanation, urged somewhat emphatically by the Thurstones, is that the colleges have raised their entrance requirements.²

Humphreys³ evolved a rough statistical procedure that, when applied to the medians from 1927 through 1932, using 1930 as a base group, indicated a statistically significant gain in the scholastic aptitude of the sample groups of Freshmen of the University of Chicago that he studied.

Whether the Freshmen of the New Plan groups were actually more apt than those of other years is difficult to answer conclusively. At least it may be said that they were not inferior to the Old Plan students in scholastic aptitude, and that they were a suitable group, scholastically, with which to begin the experiment of the New Plan.

A point of major interest is the consistently higher mean scores maintained by the men as compared to those of the women during the period of this study. The differences, which were found to be highly significant, statistically, were remarkably consistent, varying less than two full score points from the lowest to the highest in the groups studied.

A marked shift in the geographic sources of students, which began prior to the introduction of the New Plan, indicated that proportionally more students were being drawn from the Chicago area and fewer from the rest of Illinois and from other states. A similar shift was found in the secondary-school sources of the students.

¹Wilhelm Reitz, "The Median Intelligence Scores of Successive Freshman Classes of the University of Chicago, Expressed in Terms of Adjusted Measures of National Central Tendencies and Dispersion," pp. 1, 2. Unpublished Report to the Dean of the College, the University of Chicago, February, 1934.

²The Thurstones, op. cit., pp. 195, 196.

³J. Anthony Humphreys, "Changes in Certain Aspects of the College of the University of Chicago Following the Inauguration of the New Plan (1931)," pp. 24-26. Unpublished Doctor's dissertation, Department of Education, University of Chicago, August, 1934.

CHAPTER III

COMPARISONS AT THE COLLEGE LEVEL

Requirements of the College

Under the Old Plan the principal requirement of the College was the passing of eighteen quarter-courses with a qualitative achievement of "C". Under the New Plan the principal requirement is the passing of six comprehensive examinations and the English Qualifying Examination.

The six comprehensive examinations of the New Plan cover the following work: the four introductory general courses of a year's length each in the Biological Sciences, the Physical Sciences, the Humanities, and the Social Sciences; and "second-year" sequences in two of the four fields cited, or two "second-year" sequences in one of the fields.

The content and intent of the comprehensive examinations are based on the following principle:

. . . . The student should be asked not only to supply whatever factual material he is expected to have mastered, but also to deal with it in such a manner as to involve, wherever possible, some degree of reasoning.¹

A student need not register for or attend a specific course before writing a Board examination, provided he has regularly matriculated in the University. (A recent revision of this regulation provides that a student must now pay an examination fee, under certain conditions, if he has not taken the courses leading to the specific examination.) If he fails he may repeat the examination whether or not he has attended any course or has been in residence in the meantime, unless he has been dropped for poor work. Examinations may also be repeated for the purpose of raising a grade. Papers are scored and the grades established without reference to the students' names. The grades for the

¹"Report of the New Plan Examinations for the Period, 1931-33," pp. 3-6. Prepared by the Examiners. Chicago: Board of Examinations, University of Chicago, December, 1933.

examinations are determined by the instructional staffs in co-operation with the Examiner, and are based solely upon the results of the examinations.

Program Patterns

One of the major aims of the College under both plans was the completion of a broad general education. The extent to which the student became acquainted with the four fields of knowledge is assumed to be an indication of the degree to which the aim of general education was being accomplished.

The general patterns of work undertaken by the students under the two plans emerge from their programs of courses and/or examinations. Marks or rates of progress are of little significance in this connection except as these must be considered in determining the completion of the requirements of the College. Since a student need not, under the New Plan, actually register for the courses upon which he is examined, the examinations become perhaps the most important determinant in the patterns of work covered. Under the Old Plan the courses for which the students actually registered determined the program patterns.

All data presented are based on the individual programs of study, and were drawn from the records of those students who completed the requirements of the College in six quarters or fewer. The programs of students who took more than six quarters to complete the requirements were found to contain a considerable amount of Divisional work, hence were deemed unsatisfactory for comparative purposes.

The two most significant findings shown in Table 4 are the much larger percentages of work taken in the Biological Sciences and the decreased percentages in the Humanities under the New Plan. The percentages of the students' programs in the Biological Sciences under the New Plan were treble the proportion found in this field for the 1921 group and double that of the 1930 class. The decrease in the proportion of the programs in the Humanities was largely the result of sharp decreases in the percentages of work taken in this Division by the women students.

It seems evident that the programs of the men were somewhat more equably balanced under the New Plan than under the Old, the large increase in the percentages of work found in the Biological Sciences being offset primarily by the decrease in the

TABLE 4

PERCENTAGES OF WORK IN THE DIVISIONAL FIELDS AND PROFESSIONAL SCHOOLS FOUND IN THE PROGRAMS OF STUDENTS WHO COMPLETED THE REQUIREMENTS OF THE COLLEGE IN SIX QUARTERS OR FEWER

Old Plan Groups						
Division or School	1921			1930		
	Men (138)	Women (85)	Total (223)	Men (146)	Women (84)	Total (230)
Biological Sciences. . .	5.28	5.07	5.20	8.05	8.02	8.04
Physical Sciences. . .	25.76	11.94	20.54	30.93	11.97	23.90
Humanities	29.92	60.42	41.45	30.99	61.18	42.18
Social Sciences. . . .	30.98	21.17	27.27	28.33	18.58	24.72
Law.	.70	.....	.43	.....	.....	.....
Business	7.36	1.40	5.11	1.70	.25	1.16
Social Service Administration . . . .	.....	.....	.....	.....	.....	.....
Total.	100.00	100.00	100.00	100.00	100.00	100.00
New Plan Groups						
	1931			1932		
	Men (160)	Women (94)	Total (254)	Men (191)	Women (109)	Total (300)
Biological Sciences. . .	16.66	15.19	16.14	16.35	15.53	16.06
Physical Sciences. . .	27.09	16.20	23.24	28.55	19.67	25.20
Humanities	31.02	43.84	35.55	29.80	41.74	34.06
Social Sciences. . . .	23.71	24.45	23.97	23.99	22.84	23.58
Law . . . . .	.....	.....	.....	.22	.09	.17
Business	1.52	.32	1.10	1.07	.08	.90
Social Service Administration . . . .	.....	.....	.....	.02	.04	.03
Total.	100.00	100.00	100.00	100.00	100.00	100.00

percentages in the Social Sciences. The programs of the women under the New Plan, while not so nearly balanced as those of the men, approached a more equable distribution of work among the four fields than under the Old Plan. Under the Old Plan the women specialized rather highly in the Humanities, choosing more than sixty per cent of their work in the College from courses in this Division and less than twenty per cent of it from the courses of the two science Divisions, combined. Under the New Plan about one-third of their work was in the science Divisions, and but

slightly more than forty per cent in the Humanities.

Among the principal requirements of the New Plan in the College is the stipulation that all students must be examined on the introductory general courses in the four Divisional fields, whether or not they register for the underlying three quarter-courses comprising each of the general courses. The extent to which the work done by the students in the four Divisional fields was concentrated in the introductory general courses is shown in Table 5.

TABLE 5

PERCENTAGES THAT THE INTRODUCTORY GENERAL COURSES ARE OF THE TOTAL NUMBER OF COURSES COVERED IN EACH DIVISIONAL FIELD BY STUDENTS WHO COMPLETED THE WORK OF THE COLLEGE IN SIX QUARTERS OR FEWER

Division	1931			1932		
	Men	Women	Total	Men	Women	Total
Biological Sciences. .	71.95	84.68	76.19	76.80	83.20	79.02
Physical Sciences. . .	44.20	79.44	52.89	44.00	67.40	50.36
Humanities	38.62	29.34	34.57	42.15	30.97	37.63
Social Sciences. . . .	50.53	52.51	51.24	52.38	56.68	53.86

Although it is clear from the findings in Table 5 that under the New Plan the work taken by the students in the Biological Sciences was largely in the Introductory General Course, the fact that acquaintanceship with this field is prescribed even to the extent of an examination covering the course has brought the general education of the students into the improved balance noted in Table 4. A similar comment might be made relative to the work of the women in the Physical Sciences.

With from one-third to more than three-fourths of the work of the several Divisions at the College level under the New Plan represented by that covered in the introductory general courses, the percentages of the work in the courses of the various departmental fields within the several Divisions obviously had to be less, on the whole, than was found under the Old Plan. While some students did "specialize" rather highly in the College under the New Plan, as a rule the findings indicated smaller percentages of work in the courses of the various departments, generally lower

mean courses per student, and somewhat lower ranges.

In contrast to the fact that all students are compelled by the requirements of the New Plan to exhibit acquaintanceship with the four broad fields of knowledge by means of the comprehensive examinations, it was found possible under the Old Plan for students to complete the work of the College without registering for any courses in one or more Divisions, as may be seen in Table 6.

TABLE 6

PERCENTAGES OF STUDENTS OF TWO OLD PLAN GROUPS MEETING THE REQUIREMENTS OF THE COLLEGE IN SIX QUARTERS OR FEWER WHO DID NOT REGISTER FOR COURSES IN ONE OR MORE DIVISIONS

Number of Divisions Omitted in the Programs of Students	1921 Group			1930 Group		
	Men (138)	Women (85)	Total (223)	Men (146)	Women (84)	Total (230)
One division.	47.83*	42.86	45.95	44.52	25.00	37.39
Two divisions.	20.29	24.71	22.07	4.11	14.29	7.83

*This table should be read as follows: "Of the 138 men, 47.83 per cent registered for no courses in one Division, and 20.29 per cent registered for no courses in two Divisions." Some of those who registered for no courses in one Division are, of course, included in the percentages of those registering for no work in two Divisions.

Although the "continuation" and "distributive" requirements of the Old Plan were expected to prevent a student's being completely unacquainted with the basic subject matter in the broad fields, the provisions of the New Plan that evidence of acquaintanceship be specifically demonstrated seems to assure more effectively that such an acquaintance exists upon standards satisfactory to the University.

Other evidence was adduced to show that but 1.80 per cent of the students in the 1921 group and 1.74 per cent in the 1930 group registered for three or more courses in all four of the Divisions during their careers in the College. It is not implied that three courses in any one Division under the Old Plan were equivalent to the three quarter-courses of the introductory general course program of the New Plan; the evidence cited is quantitative rather than qualitative.

The fact that under the New Plan all students are re-

required to pass the comprehensive examinations over the four introductory courses should not lead to a premature conclusion that the secondary-school work of the student is necessarily repeated in the College. On the contrary, a student may absent himself from the lectures over those portions of the introductory courses which he feels he knows, or he need not attend any of the class sessions at all. Further, he may be advised not to register for certain of the introductory courses in which he apparently has had sufficient preparation. According to the data in Table 7, in all four Divisional fields some students did not register for the introductory general courses, yet were successful in the respective comprehensive examinations.

The foregoing was particularly true in the Physical Sciences among the men. It would be inaccurate to say that all of these students were able to pass the comprehensive examination in this field on the sole basis of their preparation in the secondary

TABLE 7

PERCENTAGES OF STUDENTS IN TWO NEW PLAN GROUPS MEETING THE REQUIREMENTS OF THE COLLEGE IN SIX QUARTERS OR FEWER WHO DID NOT REGISTER FOR THE INTRODUCTORY GENERAL COURSES IN CERTAIN DIVISIONAL FIELDS, BUT WHO PASSED THE COMPREHENSIVE EXAMINATIONS IN THE RESPECTIVE FIELDS

Division	1931 Group			1932 Group		
	Men (160)*	Women (94)	Total (254)	Men (191)	Women (109)	Total (300)
Biological Sciences. . .	.63	3.19	1.59	1.58	1.83	1.67
Physical Sciences. . .	17.50	....	11.02	16.23	3.66	11.67
Humanities . . . . .	.....	2.13	.79	2.09	4.59	3.00
Social Sciences. . . .	1.25	1.07	1.18	2.09	2.76	2.33

* The figures in the parentheses indicate the number of students in the various groups.

school; nevertheless, a cursory study of the work accepted as entrance units indicated that most of these students had taken nearly all of the science courses commonly offered in the high schools. It should also be noted that the percentages in the 1932 group were higher for virtually all Divisions, especially among the women.

A brief study was made of the "extra work" taken in the College by students under the two plans. "Extra work" under the Old Plan is here defined as work over and above the eighteen required majors, including "excess high-school credit" and "advanced standing" credit. The former was granted rather liberally, and was counted in the same way toward meeting the requirements as were majors earned in residence. The latter was awarded according to a system by which a student who worked to a certain standard in a more advanced course was granted credit in a preceding course for which he had not registered. "Extra work" in the College under the New Plan is here defined as courses taken that were not in direct preparation for any of the comprehensive examinations written by the students in the College.

It is evident from the data in Table 8 that not much "extra work," as defined above, was taken, in contrast to the much higher means per student under the New Plan.

TABLE 8

MEAN NUMBER OF "EXTRA COURSES" TAKEN BY STUDENTS
OF OLD AND NEW PLAN GROUPS WHO WERE IN RESIDENCE
FOR SIX QUARTERS

Groups	Old Plan		New Plan	
	1921	1930	1931	1932
Total group.	.21	.28	2.83	1.81
Men.	.26	.31	3.08	1.92
Women.	.14	.21	2.42	1.61

Conclusions.--It may be concluded that under the New Plan the programs of the students were broader than those under the Old, and that specialization at the College level was evidently less. It also seems clear that the requirements of the New Plan permitted a program pattern in the College that was as flexible as that of the Old Plan without sacrificing reasonable certainty that a student was acquainted with the four broad fields of knowledge assumed to comprise a formal general education, and that in doing so, the student was not needlessly compelled to repeat work included in his secondary-school preparation. Further, the evidence of the larger mean number of "extra" courses per student

indicates that the prescriptions of the New Plan apparently did not hamper the initiative of students in developing programs to fit their individual needs.

Rate of Progress

One of the aims of the New Plan--to permit a student to advance at his best rate of progress--is realized if some students show themselves capable of completing the requirements of the College in substantially less than the normal time expectancy, or if a larger proportion meet the requirements in the "normal" length of residence. The data in Table 9, based upon the number of students in the matriculating groups, show that an increasing percentage of students fulfilled the requirements within and including the normal six quarters of residence.

The percentage of "retarded" students in the 1931 group may be accounted for in part by the high rate of failure on the English Qualifying Examination, found by Meade¹ to amount to 82.4 per cent of those taking the test during 1930-31. The passing grade on the English Qualifying Examination was lowered from "B" to "D" on February 18, 1933, which was after most of the 1931 group had taken at least one of the examinations. Some part of the "retarded" group of 1932 also may be accounted for in a like manner.

It is apparent that something in the administration of the examinations was causing a much larger percentage of students under the New Plan to meet the requirements in exactly six quarters, rather than in intermediate quarters. Since the introductory general courses are a year in length, and since most students tend to write the examinations during the Spring quarter, it may be supposed that these two factors are the reason for the finding noted.

It is significant that 1.10 per cent of the 1932 class met the College requirements in half the normal time expectancy. That no large group succeeded in radically reducing the expected time implies that the new introductory courses were not inferior in quality to the former quarter-courses, and it indicates that

¹Raymond D. Meade, "An Evaluation of the First Year under the New College Plan of the University of Chicago, Based on Student Progress and Student Opinion," p. 91. Unpublished Master's thesis, Department of Education, University of Chicago, June, 1933.

TABLE 9

PERCENTAGES OF STUDENTS IN OLD AND NEW PLAN GROUPS WHO COMPLETED THE REQUIREMENTS
OF THE COLLEGE IN VARIOUS PERIODS OF RESIDENCE

Number of Quar- ters of Residence	Total Groups			
	Old Plan		New Plan	
	1921 (670) ^a	1930 (552)	1931 (637)	1932 (634)
Three quarters. .	.15	....	....	1.10
Four quarters. .	.15	.72	.80	.32
Five quarters. .	4.77	9.24	.90	1.10
Six quarters. .	28.21	31.70	36.58	44.80
Total	33.28	41.66	38.08	47.32
More than six .	16.12	12.50	15.59	14.67
Miscellaneous .	.75	2.72	.15	.47
Total	50.15	56.88	53.82	62.46
Dropped out . .	49.85	43.12	46.18	37.54
Grand total .	100.00	100.00	100.00	100.00

^aThe figures in the parentheses indicate the number in each group.

TABLE 9--Continued

Men and Women									
	Men				Women				
	Old Plan		New Plan		Old Plan		New Plan		
	1921 (396) ^a	1930 (310)	1931 (389)	1932 (372)	1921 (274)	1930 (242)	1931 (278)	1932 (262)	
Three quarters. . .				1.34	.36			.76	
Four quarters. . .	.25	.97	.76	.54		.41	.36		
Five quarters. . .	4.80	10.00	.77	1.34	4.74	8.26	1.08	.76	
Six quarters. . .	29.80	36.13	39.60	48.12	25.92	26.03	32.37	40.08	
Total.	34.85	47.10	41.13	51.34	31.02	34.70	33.81	41.60	
More than six ^b . . .	16.92	12.58	15.68	15.60	14.98	12.39	15.47	13.36	
Miscellaneous. . .	.76	3.23			.73	2.07	.36	1.15	
Total.	52.53	62.91	56.81	66.94	46.71	49.17	49.64	56.11	
Dropped out. . . .	47.47	37.09	43.19	33.06	53.29	50.83	50.36	43.89	
Grand total. . .	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	

^aThe figures in the parentheses indicate the number in each group.

^b"Miscellaneous" includes students who earned transfer credit subsequent to their matriculation at the University, and others completing the requirements of the College but whose records did not meet all of the conditions of this study.

the examinations were not a sieve with too broad meshes.

Requirements fulfilled in three and in six quarters of residence.--The emphasis in the present section is on the amount of work done in definite periods of time, rather than on the time needed to complete the fixed group of requirements, as in the preceding paragraphs.

While students were not compelled under either plan to meet the College requirements in six quarters of residence, it was expected that they would do so. As previously explained, the requirement under the Old Plan was the passing of eighteen courses; under the New Plan the requirement of the College is the passing of the seven examinations, which cover the work of twenty quarter-courses. It might be expected that in three quarters of residence a student under the Old Plan would complete nine courses, and under the New Plan, the comprehensive examinations and the English Qualifying Examination, approximating eleven courses. Under neither plan, however, can "half the requirements" be precisely determined.

According to the data shown in Table 10, it seems clear,

TABLE 10

COMPARISONS BETWEEN OLD AND NEW PLAN GROUPS ON THE BASIS OF THE REQUIREMENTS OF THE COLLEGE COMPLETED BY STUDENTS WHO WERE IN RESIDENCE AT THE END OF THREE AND OF SIX QUARTERS

	Old Plan		New Plan	
	1921	1930	1931	1932
Percentage of the requirements completed in three quarters of residence	48.15	51.07	36.75	48.80
Mean number of required courses completed in three quarters of residence	8.68	9.19	7.35	9.76
Mean number of courses completed in three quarters with "extra" work added	*	*	8.08	10.74
Percentage of the requirements completed in six quarters of residence	97.94	100.69	86.75	87.59
Mean number of required courses completed in six quarters of residence	17.63	18.12	17.35	17.52
Mean number of courses completed in six quarters with "extra" work added	*	*	20.18	19.33

*The "extra" work is already included in the means for the Old Plan groups.

on the basis of the percentage of the requirements completed in the respective periods of residence, that the comparisons definitely favor the Old Plan groups. The effect of the high failure percentage in the English Qualifying Examination of the 1931 groups under the New Plan is especially noticeable in the data for those in residence for three quarters. When the "mean number of courses completed" is the measure used, however, the achievement of the New Plan group is only slightly inferior on the basis of required work, and it is definitely superior when the mean "extra" courses are added.

Comparisons of Scholastic Achievement

Percentages of failure under the two plans.--The following method was used in assembling data: If a student failed a subject twice under the Old Plan, it was counted as two failures, with similar treatment accorded repeated failures in the examinations under the New Plan. It should be borne in mind that the failure of a comprehensive examination is roughly equivalent to failing three quarter-courses under the Old Plan, quantitatively speaking. Failures in the English Qualifying Examination prior to February 18, 1933, were not counted, as before that date this examination was a placement test.

According to the data in Table 11, the differences in the proportions of courses or examinations failed under the respective plans are very marked, with the Old Plan groups having much the lower percentages. It should also be noted that under the Old Plan, the failure-percentages for the men were the higher; under the New Plan, the women had the higher percentages of failure.

TABLE 11

PERCENTAGES OF COURSES OR COMPREHENSIVE EXAMINATIONS
FAILED BY STUDENTS IN THE COLLEGE IN TWO OLD AND TWO
NEW PLAN GROUPS

Groups	Old Plan		New Plan	
	1921	1930	1931	1932
Total group.	4.89	2.51	15.95	15.20
Men	5.11	2.94	15.27	15.10
Women.	4.53	1.90	16.95	15.34

The percentages of individual students who failed are presented in Table 12. While the differences in the percentages of individuals who failed did not "favor" the Old Plan to so great an extent as in the percentage of courses failed, the percentages for the New Plan groups were substantially higher than those for the last group of the Old Plan--that of 1930. Again, under the Old Plan, the percentages of men who failed were higher than those for the women; under the New Plan the women had the higher percentages of individuals failing.

TABLE 12

PERCENTAGES OF STUDENTS IN TWO OLD AND TWO NEW PLAN
GROUPS WHO FAILED ONE OR MORE COURSES
(OR EXAMINATIONS) IN THE COLLEGE

Groups	Old Plan		New Plan	
	1921	1930	1931	1932
Total group	39.25	24.28	36.49	34.76
Men	41.41	27.10	33.42	34.41
Women	36.13	20.66	39.56	35.25

Various reasons may be ascribed to the findings. In so far as scholastic aptitude is concerned, the data presented elsewhere indicate that the New Plan groups were at least equal, if not somewhat superior, to the Freshmen of 1930. Second, there is no evidence that the teaching under the New Plan was either better or worse than under the Old Plan, although it is known informally that those teaching the introductory general courses held frequent discussion for the purpose of improving their methods and techniques. Third, it may be that the change from short quarter-courses to the year-courses, with heavier demands on the student, and with examinations on the year-courses as units, was a partial cause of the high percentages of failure under the New Plan.

A study of the evidence available indicates rather clearly that more severe marking practices developed in connection with the comprehensive examinations than were used under the Old Plan. Maddox¹ found that, during the Winter and Spring quarters of 1929,

¹Clifford Rhea Maddox, "Marking Practices in Undergraduate

a total of 15.1 per cent of the marks given were A's, and that 2.3 per cent were F's. The present study reveals that in the 1930 group, 2.51 per cent of the marks given in the College were F's. On the other hand, reports of the Board of Examinations from 1933 through 1936 covering large groups of comprehensive and "sequence" examinations show a range from 7 per cent to 15 per cent of A's, with a mode of 10 per cent; and a range of 7 per cent to 20 per cent of F's with a bi-modal distribution at 14 and 15 per cent.

In the opinion of the writer, based on the evidence presented, and the fact that the student body in the New Plan groups was at least equal to, if not slightly more scholastically apt than the students under the Old Plan, the distribution of marks found among the large groups of students taking the comprehensive examinations in the College is open to serious question, even though it be desirable to raise scholastic standards, and even though testing technicians may marshal elaborate statistical defenses to justify the pattern of marks found. The view of the writer is supported by Reeves and Russell in one of the reports of the University of Chicago Survey, which was made while the Old Plan was still in operation. They said:

There is some question whether it is desirable for the University to continue to raise its standards and at the same time fail from one-fourth to one-third of those whom it admits.¹

Scholastic achievement and other characteristics.--Scholastic achievement is reflected through the "grade-point" averages of the students. Under the Old Plan the following "honor" points were assigned to each letter-grade: A,6; B,4; C,2; D,0; F,-2. These have been used throughout this study.

One of the most significant comparisons between the Old and the New Plan groups, shown in Table 13, is that of the mean grade-point averages of the students who completed the requirements of the College, or who dropped out before doing so.

Courses of the Various Departments of the University of Chicago," p. 46. Unpublished Doctor's dissertation, Department of Education, University of Chicago, December, 1933.

¹Floyd W. Reeves and John Dale Russell, Admission and Retention of University Students, p. 26. The University of Chicago Survey, Vol. V. Chicago: The University of Chicago Press, 1933

TABLE 13

MEAN GRADE POINT AVERAGES EARNED BY STUDENTS WHO COMPLETED THE REQUIREMENTS OF THE COLLEGE, CLASSIFIED ACCORDING TO THE NUMBER OF QUARTERS TAKEN BY STUDENTS TO MEET THE REQUIREMENTS, OR DROPPING OUT BEFORE DOING SO.*

Length of Residence	Old Plan				New Plan								
	1921			1930			1931			1932			
	Num-ber	Mean G.P.A.	S.D.	Num-ber	Mean G.P.A.	S.D.	Num-ber	Mean G.P.A.	S.D.	Num-ber	Mean G.P.A.	S.D.	
Total Group													
Less than 6 qrs. .	34	4.25	.69	55	3.74	.82	10	2.61	.81	16	2.90	1.19	
Six quarters . . .	189	3.52	.92	175	3.29	.91	244	2.97	1.44	284	2.93	1.44	
More than 6 qrs. .	108	2.99	.65	68	2.73	.86	104	1.95	1.03	93	1.73	1.05	
Total.	331	3.42	.93	298	3.25	.90	358	2.66	1.41	393	2.64	1.44	
Drop-outs.	333	1.68	1.52	236	1.79	1.36	238	.57	1.75	193	.53	1.75	
Men													
Less than 6 qrs. .	20	4.28	.72	34	3.87	.84	6	3.03	.66	12	3.38	1.04	
Six quarters . . .	118	3.38	.85	112	3.28	.94	154	3.12	1.43	179	3.15	1.49	
More than 6 qrs. .	67	2.93	.62	38	2.65	.74	61	2.04	.96	58	1.86	1.24	
Total.	205	3.32	.86	184	3.25	.97	221	2.82	1.39	249	2.85	1.51	
Drop-outs.	187	1.58	1.42	113	1.61	1.37	123	.64	1.78	99	.50	1.91	
Women													
Less than 6 qrs. .	14	4.21	.64	21	3.52	.62	4	2.33	.83	4	2.33	.82	
Six quarters . . .	71	3.75	.99	63	3.31	.81	90	2.70	1.40	105	2.54	1.27	
More than 6 qrs. .	41	3.09	.69	30	2.70	.96	43	1.81	1.12	35	1.51	.91	
Total.	126	3.59	1.07	114	3.23	.86	137	2.41	1.36	144	2.32	1.07	
Drop-outs.	146	1.81	1.63	123	1.98	1.34	115	.50	1.71	194	.56	1.57	

*Discrepancies between the totals shown in this table and the totals for students meeting the requirements of the College in each year-group are accounted for through students whose records showed transfer credit earned subsequent to their matriculation at the University of Chicago, and miscellaneous reasons.

It is readily seen that the raw mean grade-point averages under the Old Plan were all higher than those under the New Plan. The raw means also indicated that the differences between the achievement of the men and that of the women were larger under the New Plan than they had been under the Old, and favored the men. The size of the means is generally inversely proportional to the length of residence.

It was concluded in a preceding paragraph that a more severe marking system was in force under the New Plan. Humphreys came to a similar conclusion during the course of his study, and attempted to determine a method to make the achievement averages comparable. By appropriate statistical calculations, he arrived at the conclusion that an Old Plan student under New Plan conditions would have averaged .95 of a grade-point lower, and that New Plan averages under Old Plan conditions would have been 1.03 grade-points higher.¹

When Humphreys' adjustment is made to the data in Table 13, the balance tips in favor of the New Plan classes for the "total groups" and also for the men, but not so for the women, whose averages, after the adjustment, show but negligible differences between the two plans. Also, the adjusted averages of the students who dropped out continued to remain lower among the New Plan groups.

It may be concluded that the New Plan students who met the requirements of the College did better work, as measured by the grade-point averages adjusted to compensate for the more severe marking practices of the New Plan, than did the Old Plan groups, and that those who dropped out achieved much lower mean grade-point averages under the New Plan than did those dropping out of the Old Plan classes.

The consistently higher standard deviations found among the New Plan groups indicate considerably less homogeneity as to scholastic achievement than prevailed among the Old Plan students. The differences in the standard deviations between the two plans among the drop-out students were substantially less than those among the students who completed the requirements.

¹Humphreys, op. cit., pp. 86-92.

Scholastic Aptitude

The data concerning the scholastic aptitude of the students who fulfilled the requirements of the College and of those who left before doing so are presented in Table 14. The psychological test was not given to the students who entered the University in 1921.

In all of the comparisons presented, the mean scores of the students who fulfilled the requirements of the College exceeded the means for the students who left before doing so. The means for the sub-groupings were inversely proportional to the period of residence taken to fulfill the requirements. In the total groups, the differences between the means of those who were accelerated and those who completed the requirements in six quarters were not statistically significant, but the differences between the scores of those who completed the requirements in six quarters and those who took more than six were all found to be significant. The differences between the scores of those who completed the requirements and those dropping out before doing so were also found to be statistically significant.

In both New Plan classes the means for the "total groups" who met the requirements exceeded the means for the entire class by a larger proportion than was found for the 1930 group, indicating, especially in the 1931 group, that they were drawn more largely from the students with relatively higher scores and less from those with lower scores than was the case in the 1930 group. In comparing the "total groups" of those who dropped out, it was found that the proportional losses from the class means were greater in the New Plan groups than for the 1930 class. Considered together, the proportional gains and losses from the class means seem to indicate that those with lower scores were less likely to fulfill the requirements under the New Plan than the student-groups with lower scores under the Old Plan.

Previously a general reference was made to Humphreys' attempt to arrive at comparable scores. Using 1930 as a base, his calculations indicate that scores of the size shown in Table 14 should be reduced 9 points in the 1931 group and 21 points in the 1932 group.¹ The effect of the adjustment, in so far as this

¹Ibid., pp. 22-26

TABLE 14

MEAN SCORES RECEIVED ON THE AMERICAN COUNCIL TESTS BY STUDENTS WHO COMPLETED THE REQUIREMENTS OF THE COLLEGE, CLASSIFIED ACCORDING TO THE PERIOD OF RESIDENCE NEEDED TO MEET SUCH REQUIREMENTS, OR WHO DROPPED OUT BEFORE DOING SO*

Period of Residence	Old Plan			New Plan					
	1930			1931			1932		
	Num- ber	Mean Score	S.D.	Num- ber	Mean Score	S.D.	Num- ber	Mean Score	S.D.
Total Group									
Less than six quarters. . .	52	220	52	9	222	48	15	247	57
Six quarters. .	171	195	45	243	222	51	279	236	46
More than six quarters. . .	64	171	52	101	195	44	92	206	49
Total . . .	287	194	51	353	219	50	386	229	49
After Humphreys adjustment. .	...	...	..	...	210	..	...	208	..
Mean for class. .	...	185	..	...	202	..	...	217	..
Dropped out . .	218	172	51	290	185	52	225	196	49
After Humphreys' adjustment. .	...	...	..	...	176	..	...	175	..
Men									
Less than six quarters. . .	31	229	48	5	242	44	11	260	59
Six quarters. .	108	199	43	154	232	51	176	241	44
More than six quarters. . .	35	168	52	58	197	44	57	210	41
Total . . .	174	198	50	217	223	51	244	235	48
Mean for class. .	...	191	..	...	208	..	...	224	..
Dropped out . .	103	178	51	164	186	51	113	198	49
Women									
Less than six quarters. . .	21	208	56	4	195	31	4	212	33
Six quarters. .	63	188	50	89	205	46	103	226	47
More than six quarters. . .	29	174	53	43	192	43	35	201	48
Total . . .	113	188	45	136	201	46	142	219	48
Mean for class. .	...	177	..	...	192	..	...	208	..
Dropped out . .	115	167	50	126	183	54	112	193	49

*Discrepancies between the totals shown in the table and the total number of students in the respective groups are accounted for principally through those who did not take the tests, or for miscellaneous reasons.

study is concerned, is to show that there was virtually no difference in scholastic aptitude between the New Plan groups who fulfilled the requirements of the College. There was, however, a distinct difference between the scores of the Old Plan group of 1930 and those of the New Plan groups, the latter being the higher. Second, after the adjustment is made, the mean scores for students who dropped out before meeting the requirements were virtually the same in both the Old and the New Plan groupings. It seems clear, then, that on the whole a higher scholastic aptitude was necessary to meet the conditions of the New Plan.

Under the New Plan the mean scores of the men who met the requirements were substantially higher than those for the women. It should be recalled, however, that the mean scores of the men in all of the original groups were substantially higher than those of the women. The differences between the mean scores of the men and of the women who left the New Plan groups, especially that of 1931, were comparatively small, suggesting either that the men who scored low on the tests tended to drop out in greater proportions than did the women with low scores, or that the groups dropping out included more of the women with the higher scores than of the men having higher scores.

CHAPTER IV

COMPARISONS AT THE DIVISIONAL LEVEL

The Requirements of the Divisions

Requirements for the undergraduate degrees under the Old Plan included the accumulation of thirty-six majors with an average of "C," comprising a principal sequence of nine majors from one department or group of departments, and one secondary sequence of six majors. Twelve courses of senior-college grade were required, and certain restrictions were placed to prevent overspecialization. Under the New Plan each Division provides in its own way for specialization, related work, and electives. Comprehensive examinations are used extensively, although the Biological and the Physical Science Divisions have made their use optional since the data for this study were compiled. The award of the Bachelor's degree was taken as prima-facie evidence that the student had completed the requirements.

In the Biological Sciences and in the Law School under the New Plan, it was found that many students did not receive the Bachelor's degree until some time after they had completed the requirements, though this may happen in any Division. A careful attempt was made to evaluate the work of such students to determine the earliest date at which they might have been awarded the degree, and that date was used in the various comparisons. In so far as this study is concerned, the Bachelor's degree is the limit to which the data have been obtained.

Program Patterns

Analyses were made of the total programs of the students who fulfilled the requirements for the baccalaureate degrees because an examination of the programs at the upper level alone obviously would emphasize merely the differences among the requirements of the several Divisions rather than the differences between the two plans of instruction. The percentage distributions of Divisional and professional work in the programs of all students

who earned the Bachelor's degree, regardless of their length of residence, are shown in Table 15.

TABLE 15

PERCENTAGE OF DIVISIONAL AND PROFESSIONAL WORK FOUND IN THE PROGRAMS OF STUDENTS WHO EARNED THE BACHELOR'S DEGREE

Old Plan						
Division or School	1921			1930		
	Men (5793)*	Women (4033)	Total (9826)	Men (5361)	Women (3915)	Total (9276)
Biological Sciences . .	9.15	7.46	8.46	9.92	9.42	9.71
Physical Sciences . .	19.60	9.12	15.30	30.90	9.28	21.78
Humanities	26.23	55.82	38.37	24.25	55.31	37.36
Social Sciences . . .	30.74	26.24	28.90	19.47	21.88	20.49
Law School	4.04	.23	2.47	2.51	.13	1.50
School of Business . .	10.15	.99	6.39	12.94	2.79	8.65
Social Service Adm. . .	.09	.14	.11	.01	1.19	.51
Divinity . . . . .	.....	.....	.....	.....	.....	.....
Totals	100.00	100.00	100.00	100.00	100.00	100.00
New Plan						
	1931			1932		
	Men (7602)	Women (4336)	Total (11938)	Men (7943)	Women (4802)	Total (12745)
Biological Sciences . .	14.98	15.34	15.11	15.02	14.02	14.64
Physical Sciences . .	25.24	12.64	20.66	25.32	15.59	21.65
Humanities	25.01	37.91	29.69	23.06	33.53	27.01
Social Sciences . . .	22.93	29.02	25.14	23.98	30.32	26.36
Law School	5.25	.74	3.61	6.82	.91	4.60
School of Business . .	6.47	3.06	5.24	5.56	4.73	5.25
Social Service Adm. . .	.....	1.29	.47	.18	.90	.45
Divinity	.12	.....	.08	.06	.....	.04
Totals	100.00	100.00	100.00	100.00	100.00	100.00

*The figures in parentheses indicate the grand total of courses for which students registered or covered through comprehensive examinations in earning the Bachelor's degree.

The largest proportionate increase of the New Plan groups over those of the Old Plan was found in the work taken in the Law School. The requirements of this School virtually confine registrations to the Divisional level; consequently, the large increase represents a marked shift in emphasis of work at the Divisional level. Other pronounced changes under the New Plan were the large increase in the percentage of work in the Biological Sciences and

the substantial decrease in the field of the Humanities.

It seems evident that under the New Plan the general education of all students who earned the Bachelor's degree was increased at least to the extent that the higher proportion of work allocated to the Biological Sciences indicates the filling of an apparent gap found under the Old Plan. Under the New Plan the women took a larger percentage of their work in the two science Divisions than they had under the Old Plan, and specialized less highly in the Humanities than they had under the Old Plan.

The Divisional level is conceded to be the area primarily for undergraduate specialization, but the roots of specialization extend down into the College in much the same way that general education extends upward into the Divisions. Specialization therefore should be analyzed through the entire careers of the students earning the Bachelor's degree. The data for this portion of the study were drawn only from the programs of students who completed the requirements for the baccalaureate degree within and including thirteen quarters of residence, and are presented in Table 16.

The percentages of specialization under the New Plan found in the programs of the men and women earning the Bachelor's degree in all Divisions except the Humanities and the Law School showed a marked drop. The percentages in the "Rest of the Division" showed a tendency to rise under the New Plan; however, the percentages of all work in the Division of specialization under the New Plan showed, on the whole, a tendency to decrease.

The programs of the students who fulfilled the requirements in the two science Divisions showed fairly large percentage of work covered in the Humanities, especially, accountable in part to the language requirements of these two Divisions, and in the Social Sciences. On the other hand, those whose degrees were earned in the Humanities, the Social Sciences, and the professional schools showed, by comparison, but small proportions of work done in the natural sciences.

Data not shown here concerning the programs of the two sexes indicate rather clearly that in the programs of the men the percentages of work allocated to the Physical Sciences, regardless of the Division in which the degree was earned, were always greater than those of the women. The percentages of work covered in the Humanities and the Social Sciences, regardless of the Division in which the requirements for the degree were fulfilled, were gen-

TABLE 16

PERCENTAGE OF SPECIALIZATION IN THE PROGRAMS OF "NATIVE" STUDENTS OF TWO OLD AND TWO NEW PLAN GROUPS MEETING THE REQUIREMENTS FOR THE BACHELOR'S DEGREE IN THIRTEEN QUARTERS OR FEWER OF RESIDENCE, CLASSIFIED ACCORDING TO THE DIVISION IN WHICH THE DEGREE WAS EARNED

Subdivisions of Programs	Old Plan		New Plan	
	1921	1930	1931	1932
Degree Earned in the Biological Sciences				
Specialization	27.95	27.60	19.80	18.69
Rest of the Biological Sciences Division.	13.32	20.41	20.08	20.97
Biological Sciences.	41.27	48.01	39.88	39.66
Physical Sciences.	29.36	20.46	29.81	27.65
Humanities	19.58	21.16	20.22	19.50
Social Sciences.	9.38	9.26	9.98	12.54
Professional Schools	.41	1.11	.11	.65
Total.	100.00	100.00	100.00	100.00
Degree Earned in the Physical Sciences				
Specialization	31.95	37.00	28.43	27.64
Rest of the Physical Sci- ences Division.	26.67	30.97	33.56	29.18
Physical Sciences.	58.63	67.97	61.99	56.82
Biological Sciences.	6.95	5.29	11.28	11.42
Humanities	21.03	17.95	17.40	19.98
Social Sciences.	12.93	8.11	9.33	11.72
Professional Schools	.46	.68	.....	.06
Total.	100.00	100.00	100.00	100.00
Degree Earned in the Humanities				
Specialization	34.35	35.78	35.17	34.13
Rest of the Humanities Division	39.69	33.81	30.38	28.58
Humanities	74.04	69.59	65.55	62.71
Biological Sciences.	3.05	3.25	7.94	8.49
Physical Sciences.	5.43	4.31	8.49	10.97
Social Sciences.	17.26	21.92	17.79	17.11
Professional Schools	.22	.93	.23	.72
Total.	100.00	100.00	100.00	100.00

TABLE 16--Continued

Subdivisions of Programs	Old Plan		New Plan	
	1921	1930	1931	1932
Degree Earned in the Social Sciences				
Specialization	29.79	26.55	22.78	21.53
Rest of the Social Sciences Division. . . .	29.43	25.21	33.24	33.16
Social Sciences.	59.22	51.76	56.02	54.69
Biological Sciences. . . .	2.93	4.03	7.49	8.08
Physical Sciences.	8.45	6.05	10.86	11.93
Humanities	26.18	35.13	23.84	23.48
Professional Schools . . .	3.22	3.03	1.79	1.82
Total.	100.00	100.00	100.00	100.00
Degree Earned in the Law School				
Specialization	29.91	23.04	27.95	31.74
Biological Sciences. . . .	.91	1.84	7.24	7.71
Physical Sciences.	4.76	3.99	11.05	9.88
Humanities	18.20	19.05	17.46	18.10
Social Sciences.	39.27	40.10	35.00	32.25
Other Professional Schools.	6.95	11.98	1.30	.32
Total.	100.00	100.00	100.00	100.00
Degree Earned in the School of Business				
Specialization	46.86	45.97	44.13	40.27
Biological Sciences. . . .	1.46	1.82	7.67	7.22
Physical Sciences.	4.20	8.27	10.32	12.44
Humanities	13.02	13.64	17.23	17.11
Social Sciences.	34.26	30.09	20.65	22.82
Other Professional Schools.	.20	.21	.....	..14
Total.	100.00	100.00	100.00	100.00
Degree Earned in the School of Social Service Administration				
Specialization . . . . .	.....	18.79	15.52	15.03
Biological Sciences. . . .	.....	9.40	10.78	7.19
Physical Sciences. . . . .	.....	1.34	8.62	11.11
Humanities . . . . .	.....	27.52	21.98	24.19
Social Sciences. . . . .	.....	42.95	43.10	41.50
Other Professional Schools. . . . .	.....	.....	.....	.98
Total. . . . .	.....	100.00	100.00	100.00

erally but not always higher for the women than for the men. These two tendencies were found under both plans of instruction and provide evidence that the Program patterns were determined to a considerable extent by the sex, hence the interests, of the student, regardless of the plan of instruction.

In the College substantial percentages of students under the Old Plan were found to have registered for no courses whatever in one or two Divisions (Table 6). A similar but more detailed compilation at the Divisional level is presented in Table 17.

All students in the two Old-Plan groups registered for one or more courses in the Humanities, due probably to the basic English requirements and in part to the language requirements, both entrance and Divisional. It seems clear that the Biological Sciences were rather largely omitted from the entire University programs of a large percentage of students whose degrees were granted under the Old Plan in other than the science Divisions. The proportion of omission of the Physical Sciences from student programs under the Old Plan was smaller but substantial. Under the New Plan the complete omission of work in any one of the four Divisions is prevented by the prescribed comprehensive examinations in the College, and upon this fact seems to rest one of the principal comparative points of strength of the New Plan.

Rate of Progress in the Divisions

One of the aims of the New Plan--to permit a student to advance at his best rate of progress--was shown in the previous chapter to have been realized in the College. The data in Table 18 indicate that the 1931 group of the New Plan advanced at about the same rate as did the 1930 group of the Old Plan in so far as meeting the requirements for the Bachelor's degree in twelve quarters, the "normal" period, is concerned, and that the 1932 group substantially exceeded the percentages of the other three. The men of both New-Plan groups were more successful in completing their work within the normal twelve quarters than were the women of the same groups and the men of the Old-Plan classes.

Perhaps the most striking point in the table is that in both New-Plan groups a small but substantial percentage of the students was able to complete the requirements for the degree in three academic years or less. The ratios in the New-Plan groups

TABLE 17

PERCENTAGE OF "NATIVE" STUDENTS OF TWO OLD PLAN GROUPS WHO REGISTERED FOR NO COURSES
IN CERTAIN DIVISIONS,^a BUT WHO MET THE REQUIREMENTS FOR THE BACHELOR'S DEGREE

Division in Which the Degree Was Awarded	Biological Sciences			Physical Sciences			Social Sciences		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
1921 Group									
Biological Sciences ^b									
Physical Sciences	12.00	.....	8.82	.....	.....	.....	4.17	10.00	5.88
Humanities	45.45	38.81	40.45	.....	37.31	31.46	8.00	.....	5.98
Social Sciences	48.57	52.94	50.00	13.64	35.29	23.08	13.64	.....	3.37
Law School	60.00	.....	57.14	45.00	.....	42.86	.....	.....	.....
School of Business	48.39	50.00	48.48	32.26	50.00	33.33	.....	.....	.....
Social Service Administration ^c	.....	25.00	20.00	.....	50.00	40.00	.....	.....	.....
School of Education	36.08	33.64	35.07	17.72	30.91	23.13	3.90	.91	2.61
All									
1930 Group									
Biological Sciences									
Physical Sciences	17.78	14.28	17.51	.....	5.88	2.27	11.11	5.88	9.09
Humanities	36.36	27.27	29.55	9.09	27.27	22.73	33.33	.....	28.85
Social Sciences	.....	.....	.....	.....	33.53	22.22	.....	.....	.....
Law School	50.00	.....	50.00	8.33	.....	8.33	.....	.....	.....
School of Business	51.35	16.67	46.51	10.81	33.33	13.95	.....	.....	.....
Social Service Administration	.....	.....	.....	.....	33.33	33.33	.....	.....	.....
School of Education ^c	.....	.....	.....	.....	.....	.....	.....	.....	.....
All	28.08	19.05	24.30	4.79	21.90	11.95	12.33	.95	7.57

^aAll students registered for one course or more in the Humanities.

^bThis table should be read as follows: "Of the men who earned the Bachelor's degree in the Biological Sciences, 4.17 per cent registered for no courses in the Social Sciences."

^cThe School of Social Service Administration was not in existence during the years the group entering in the Autumn Quarter of 1931 were in residence; the School of Education had passed out of existence before the group entering in 1930 matriculated.

TABLE 18

COMPARISON BETWEEN OLD AND NEW PLAN GROUPS OF ENTERING FRESHMEN
SHOWING PROGRESS MADE TOWARD THE BACHELOR'S DEGREE, CLASSIFIED
AS TO WHEN STUDENTS MET REQUIREMENTS OR WHETHER THEY DROPPED
OUT BEFORE DOING SO

Number of Quar- ters to Meet Requirements	Old Plan				New Plan			
	1921		1930		1931		1932	
	Num- ber	Per- cent- age	Num- ber	Per- cent- age	Num- ber	Per- cent- age	Num- ber	Per- cent- age
Total group								
7-9 quarters	2	.30	3	.54	16	2.40	25	3.94
10-11 quarters	29	4.33	51	9.24	50	7.50	34	5.36
12 quarters	143	21.34	118	21.38	141	21.14	161	25.40
Total. . .	174	25.97	172	31.16	207	31.04	220	34.70
More than 12 .	86	12.84	59	10.69	70	10.49	80	12.61
Miscellaneous ^a	8	1.19	20	3.62	3	.45	1	.16
Total. . .	268	40.00	251	45.47	280	41.98	301	47.47
Dropped out. .	402	60.00	301	54.53	387 ^b	58.02	333 ^b	52.53
Grand Total	670	100.00	552	100.00	667	100.00	634	100.00
Men								
7-9 quarters	1	.25	2	.65	11	2.83	16	4.30
10-11 quarters	21	5.30	33	10.64	40	10.29	22	5.91
12 quarters	76	19.19	62	20.00	75	19.28	97	26.07
Total. . .	98	24.74	97	31.29	126	32.40	135	36.28
More than 12 .	55	13.89	40	12.90	48	12.33	50	13.45
Miscellaneous ^a	5	1.26	9	2.91	1	.26	...	...
Total. . .	158	39.89	146	47.10	175	44.99	185	49.73
Dropped out. .	138	60.11	164	52.90	214 ^b	55.01	187	50.27
Grand total	396	100.00	310	100.00	389	100.00	372	100.00
Women								
7-9 quarters	1	.36	1	.41	5	1.80	9	3.44
10-11 quarters	8	2.92	18	7.44	10	3.60	12	4.58
12 quarters	67	24.45	56	23.14	66	23.74	64	24.42
Total. . .	76	27.73	75	30.99	81	29.14	85	32.44
More than 12 .	31	11.32	19	7.85	22	7.19	30	11.45
Miscellaneous ^a	3	1.09	11	4.55	2	1.44	1	.38
Total. . .	110	40.14	105	43.39	105	37.77	116	44.27
Dropped out. .	164	59.86	137	56.61	173	62.23	146 ^b	55.73
Grand total	274	100.00	242	100.00	278	100.00	262	100.00

^aIncludes students who earned "transfer" credit subsequent to matriculation at the University, and others whose records did not meet all conditions of this study.

^bIncludes one student in residence when the compilation of data for this study ended.

were one in forty for the 1931 class and one in twenty-five for the 1932 group; for the Old-Plan classes the ratios were one in about two hundred for the 1930 group and one in more than three hundred for the 1921 group. The foregoing seems to be significant evidence of the success of the New Plan in permitting a small but substantial percentage of students to advance rapidly while at the same time permitting slower students to advance at about the same rate as under the Old Plan.

Scholastic Achievement in the Divisions

For a period of five quarters grades for course-work were recorded as "S" for "Satisfactory," and "U" for "Unsatisfactory." The period mentioned comprised the largest part of the normal period of residence in the Divisions of most of the students in the 1930 group. The "SU" system was used in grading many of the elective courses taken by students in the New-Plan group of 1931, as well as for some of the grades of the 1932 class. Since no grade-point averages can be made satisfactorily using the "SU" marks, the success-and-failure percentages must be used to the fullest in attempting to judge the general achievement of the students in the Divisions.

The data shown in Table 19 were computed on the "course" basis. Comprehensive examinations were transmuted to the number of courses each covered. In addition, all courses actually registered for but not underlying the examinations taken were counted in the calculations, whether a student used them as electives or not. The courses underlying the comprehensive examinations were not counted twice--they were counted only as they were "covered" by the examinations.

It is clear that the proportions of work failed in the Divisions by the Old-Plan groups were decidedly smaller than for the New-Plan classes. Also, it is evident that the percentages of course-failures among the men were consistently higher than those for the women under both plans. Under both plans the percentages of courses taken for "R" and "Incomplete" marks were higher among the men than among the women. The "R" mark, which means "Registered" and carries with it no evaluation of the work done, was not in use during the period of residence of the 1921 group.

TABLE 19

PERCENTAGES OF COURSES PASSED, FAILED, ETC., BY STUDENTS IN THE SENIOR COLLEGE OR DIVISIONS AND THE PERCENTAGES OF COURSES OR COMPREHENSIVE EXAMINATIONS PASSED, FAILED, ETC., BY THE SAME STUDENTS IN THE COLLEGE

Achievement	Old Plan				New Plan			
	1921		1930		1931		1932	
	Senior College	The College	Divisions	The College	Divisions	The College	Divisions	The College
<u>All</u>	(5147) ^a	(5899) ^a	(4999) ^a	(5438) ^a	(6893) ^a	(2498) ^b	(7648) ^a	(2857) ^b
Passed	98.44	98.42	94.96	99.11	84.39	92.47	83.15	91.70
Failed	.88	1.22	1.87	.74	9.06	7.53	7.74	8.30
"R". .	.....	.....	2.27	.02	5.14	.....	6.90	.....
Incomplete	.68	.36	.90	.13	1.41	.....	2.21	.....
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<u>Men</u>	(3112)	(3937)	(3051)	(3332)	(4503)	(1564)	(4903)	(1813)
Passed	98.07	98.40	93.13	99.05	82.67	93.93	81.35	92.33
Failed	1.33	1.30	2.39	.83	10.27	6.07	8.04	7.67
"R". .	.....	.....	3.23	.....	5.53	.....	7.90	.....
Incomplete	.58	.30	1.25	.12	1.53	.....	2.71	.....
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<u>Women</u>	(2035)	(2262)	(1948)	(2106)	(2390)	(934)	(2745)	(1044)
Passed	98.97	98.67	96.81	99.19	87.64	90.04	86.37	91.61
Failed	.20	.93	1.03	.62	6.79	9.96	7.22	9.39
"R". .	.....	.....	1.80	.05	4.40	.....	5.10	.....
Incomplete	.83	.40	.36	.14	1.17	.....	1.31	.....
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

^aFigures in parentheses in these columns indicate the total number of courses, or examinations reduced to courses, in each group.

^bFigures in parentheses in these columns indicate the total number of Comprehensive Examinations in each group.

The data indicate that a larger number of courses apparently was "taken" by the students in the New-Plan groups than by those of the Old-Plan classes. In counting the courses "taken" all comprehensive examinations in the Divisions were transmuted to the number of courses covered, regardless of whether the student actually registered for these courses or not. If a student

passed an examination based on five courses, he was credited with having "taken" these courses. If he failed, he was likewise credited with having taken the courses. If he repeated the examination, five more were added as "taken." Such a procedure in some instances undoubtedly inflated the total number of courses "taken." However, the records of the students who failed showed that frequently they re-registered for several, if not all, of the courses included in the examinations failed, often "taking them for an 'R'."

The writer found in a brief unpublished study made for the Dean of Students in 1936, based on the 1931 group of students included in the present report who had at that time taken comprehensive examinations in the Division of the Social Sciences, that students rather frequently did not register for all of the course-work upon which their comprehensive examinations were based. For example, 56 students who had taken a certain Divisional comprehensive examination did not register for 25 of the 280 courses covered. Obviously, if they did not register for courses upon which the comprehensive examination was based, they could, and it was found, did take other work instead. It seems clear, therefore, that a large part of the "excess" number of courses found in the New-Plan groups represented actual extra work.

Table 19 shows that under neither plan was there a consistent pattern concerning the relationships between the percentages of failure for the same students in the College and in the Divisions. Under both plans the percentage of the work failed by the same men was higher in the Divisions than in the College. The women who continued into the Divisions under the New Plan failed a smaller proportion of their work there than they had in the College; under the Old Plan the failure percentages for the women showed no clear pattern.

On the basis of these data it is possible to say with some conviction that while the conditions of the New Plan seemed to be of greater advantage to the men in several ways, at the Divisional level the differences in favor of the men were less evident, and in some respects these differences favored the women, particularly in the matter of percentages of failure. The foregoing may be due to several reasons, among which is the greater similarity of the conditions in the Divisions under the New Plan to those of the Old Plan than is true at the College level. Since

the women apparently found conditions of the Old Plan more favorable to them in the College than the men did, and since the Divisional level of the New Plan resembles the Old Plan to some extent whereas the New Plan in the College is entirely different from the Old Plan at that level, it may be expected that the records of the women at Divisional level under the new Plan would be more nearly equal to or even exceed those of the men.

Data not shown here indicate that the Divisions showing the smallest differences between the percentages of courses failed in the Old and the New Plans were the Biological Sciences, the Law School, and in part, the Physical Sciences. Because of the possibilities for using course work to a greater extent in the foregoing Divisions than in the others to meet the requirements for the Bachelor's degree, they most nearly resembled the Old Plan. It appears that those Divisions in which the examination system of the New Plan was used to evaluate the largest part of a student's work at the Divisional level generally had the higher percentages of course-failures and the largest differences between the proportions of such failures between the two plans.

Under both plans the percentages of failure were higher among the students who took work as members of more than one Division than among those who confined their programs to the requirements of a single Division. Further, higher percentages of failure were found in this category among the students under the New Plan than among those under the Old.

The data in Table 20 show clearly that substantially higher percentages of students failed one or more Divisional courses under the New Plan than had under the Old. Under the Old Plan the students who remained to enter the Divisions were clearly those who had been the more successful, on the whole, in their College work. It cannot be concluded, however, that students of lower quality were entering the Divisions under the New Plan than had done so under the Old. The only tentative conclusion that can be safely ventured is that it was apparently easier to fail an examination in the College under the New Plan than it had been to fail a course under the Old Plan.

The mean scores made on the American Council tests by the students who entered the Divisions are shown in Table 21. The means for the "total groups" eventually earning the Bachelor's degree were higher in each year-group than the means for the stu-

TABLE 20

PERCENTAGES OF STUDENTS WHO PASSED OR FAILED COURSES
(OR COMPREHENSIVE EXAMINATIONS) IN THE SENIOR
COLLEGE OR THE DIVISIONS AND THE PERCENTAGES
OF THE SAME STUDENTS WHO PASSED OR
FAILED COURSES (OR COMPREHENSIVE
EXAMINATIONS) IN THE COLLEGE

Achieve- ment	Old Plan				New Plan			
	1921		1930		1931		1932	
	Senior Col- lege	The Col- lege	Divi- sions	The Col- lege	Divi- sions	The Col- lege	Divi- sions	The Col- lege
Total group	(310) ^a		(287)		(332)		(377)	
No work failed	88.71 ^b	81.61	80.14	90.94	72.29	72.29	72.41	74.01
One or more courses failed	11.29 ^b	18.39	19.86	9.06	27.71	27.71	27.59	25.99
Men	(189)		(176)		(211)		(239)	
No work failed	83.07	78.84	76.70	90.34	70.62	75.83	69.46	75.31
One or more courses failed	16.93	21.16	23.30	9.66	29.38	24.17	30.54	24.69
Women	(121)		(111)		(121)		(138)	
No work failed	97.52	85.95	85.59	91.89	75.21	68.60	77.54	71.74
One or more courses failed	2.48	14.05	14.41	8.11	24.79	31.40	22.46	28.26

^aFigures in parentheses show the populations of each group, which are identical for both Senior College (or Divisions) and The College for each year.

^bThe sum of each pair of percentages is 100 per cent.

dents who dropped out after entering the Divisions except for the group matriculating in 1930. The differences were in no case statistically significant. In all "total groups" the means for both the students meeting the requirements and for those dropping out were higher than the mean scores for the respective classes at entrance.

The mean scores of those completing the Divisional requirements were virtually the same, class by class, as those of the students who fulfilled the requirements of the College (Table 14). However, the means for the students who dropped out before completing the Divisional requirements were markedly higher than those for the groups in the respective classes that dropped out

TABLE 21

SCORES RECEIVED ON THE AMERICAN COUNCIL TESTS BY STUDENTS
WHO FULFILLED THE REQUIREMENTS FOR THE BACHELOR'S DEGREE
OR WHO DROPPED OUT BEFORE COMPLETING SUCH REQUIREMENTS
BUT AFTER QUALIFYING FOR THE COLLEGE CERTIFICATE

Number of Quarters Taken to Meet Requirements	Old Plan ^a			New Plan					
	1930			1931			1932		
	Num- ber	Mean Score	S.D.	Num- ber	Mean Score	S.D.	Num- ber	Mean Score	S.D.
Total Group									
Less than 12 quarters. . .	52	210	54	65	232	40	58	244	55
12 quarters. . .	115	194	49	140	216	51	159	230	52
More than 12 quarters. . .	57	181	43	69	205	55	80	219	48
Total . . .	224 ^b	194	51	274	217	51	297	230	52
Dropped out . .	54 ^b	197	47	76	207	46	90	223	46
Mean for class.	...	185	..	..	202	..	..	217	..
Men									
Less than 12 quarters. . .	33	221	47	50	233	42	37	255	53
12 quarters. . .	59	190	54	74	228	54	96	243	52
More than 12 quarters. . .	38	187	38	47	217	52	50	221	45
Total . . .	130	197	50	171	226	51	183	239	52
Dropped out . .	40	200	50	44	212	48	61	220	44
Mean for class.	...	191	..	..	208	..	..	224	..
Women									
Less than 12 quarters. . .	14	191	60	15	230	33	21	226	54
12 quarters. . .	56	198	46	66	203	43	63	210	44
More than 12 quarters. . .	38	170	49	22	178	52	30	218	52
Total . . .	94	191	51	103	202	46	114	215	48
Dropped out . .	14	188	37	32	200	43	29	230	49
Mean for class.	...	177	..	..	192	..	..	208	..

^aThe American Council Tests were not given to the 1921 group.

^bDiscrepancies between the totals shown and the total students who entered the Divisions are accounted for through those who did not take the tests, or for miscellaneous reasons.

before completing their College work. These data indicate that under both plans the scholastically inept students tended to drop out before completing the requirements of the College.

After Humphreys' adjustment, referred to in a previous chapter, is made by deducting nine points from the 1931 scores and twenty-one from the 1932 scores, it is found that the mean scores of the graduating groups under the New Plan were almost identical--208 for the 1931 group and 209 for the 1932 class. Both of these exceeded the mean of 194 for those earning the Bachelor's degree in the 1930 group, indicating that the New-Plan groups who fulfilled the requirements for the degree tended to be somewhat more apt scholastically than the graduating group of 1930. The differences, however, are not statistically significant. The mean scores of the students who dropped out, adjusted as Humphreys suggested, were as follows: 1930 group, 197; 1931 group, 196; 1932 group, 202. The differences are relatively slight, leading to the conclusion that apparently the Divisional work under the New Plan did not require a more scholastically apt group than was needed to fulfill the Divisional requirements under the Old Plan.

The foregoing findings do not agree with those concerning scholastic aptitude at the College level, where it was evident that a more apt group was necessary to meet the requirements under the New Plan. Since the Divisional work under the New Plan resembles that of the Old Plan to some extent whereas the College work under the two plans is essentially different, these findings support previous conclusions that when the New Plan is most fully applied, a somewhat higher scholastic aptitude is needed on the part of the student groups.

CHAPTER V

CONCLUSIONS

It seems clear that a slightly more scholastically apt group entered the University of Chicago during the first two years of the New Plan than had matriculated in 1930, the last year of the Old Plan. It cannot be proved conclusively, however, that the New Plan was the magnet which drew the more apt students.

The acquisition of a general education as defined in this study was evidently accomplished more effectively under the New Plan than it had been under the Old, since the programs of the students were more equably balanced in relation to the four broad fields of knowledge. The large increases in the percentages of work taken in the Biological Sciences by both men and women, and also in the Physical Sciences by the women, indicate a broadening of the programs to cover fields previously not emphasized to the same degree as in the New Plan. Further, gaps in the programs of students under the Old Plan, as exhibited by the evidence showing the omission of work in one or more Divisions, were closed under the New Plan by the requirement that all must pass the comprehensive examinations over the four introductory general courses, whether the courses underlying the examinations were registered for or not.

The individual needs of the students under the New Plan apparently were being met as well or better than under the Old Plan since a substantially larger mean number of extra courses was taken by the students whose records were included in this study. Furthermore, those who had previous preparation were able under the New Plan to omit one or more of the introductory general courses, although they were not released from the examination requirements.

Under the New Plan, particularly after the adjustment of the passing grade on the English Qualifying Examination, a larger percentage of students than was found under the Old Plan was able to complete the requirements of the College in the "normal" resi-

dence of six quarters, and a small but not insignificant percentage was able to cut the time in half. At the Divisional level a much larger percentage of students under the New Plan was able to complete the requirements in three academic years or less than was found under the Old Plan.

Those in residence for three and for six quarters in the College under the New Plan did not quite equal the proportion of the requirements completed by students of the Old Plan, although when the percentages of requirements met were converted into courses and due regard given to the "extra work," the students under the New Plan accomplished substantially more, quantitatively.

Under the New Plan a pronounced increase in the percentages of failure was found at both levels, the increase being so great as to seem to the writer to raise a serious administrative question, especially in view of the somewhat improved scholastic aptitude of the New-Plan students.

The raw achievement, expressed in mean grade-point averages, was consistently and substantially higher under the Old Plan in the College. When adjusted to compensate for the more severe marking practices of the New Plan, the means for the groups who met the requirements of the College under the New Plan exceeded those under the Old; but the means for those dropping out of the College under the New Plan, even when adjusted to equalize the effect of the marking practices, remained below those of the students under the Old Plan.

The findings in connection with the scores on the test for scholastic aptitude indicate that a somewhat more apt student is needed to meet the requirements of the College under the New Plan and that the less apt tend to drop out in larger proportions than under the Old Plan. At the Divisional level those meeting the requirements under the New Plan tended toward a higher scholastic aptitude than the students graduating under Old-Plan requirements, but the differences between the scores of those dropping out after entering the Divisions under the two plans was slight. On the whole, it may be said that when the New Plan is fully applied, a higher scholastic aptitude than was necessary under the Old Plan seems to be needed.

Under the Old Plan the achievement of the men was consistently inferior to that of the women at the College level.

Under the New Plan the finding was reversed to such an extent that at the level of the College it may be concluded that the New Plan was especially "favorable" to the needs of the men in the two groups of New-Plan students analyzed in this study. The differences found at Divisional level, based on the success-and-failure percentages only, did not favor the men under the New Plan.

